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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,319	09/19/2003	Robert Edward Wilson	10030442-1	7914
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AVAGO TECHNOLOGIES, LTD. P.O. BOX 1920 DENVER, CO 80201-1920			EXAMINER CHIEM, DINH D	
			ART UNIT 2883	PAPER NUMBER

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/666,319

Applicant(s)

WILSON ET AL.

Examiner

Erin D. Chiem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

This office action is in response to applicant's remarks filed on February 28, 2006. Currently, claims 1-5 and 7-9 are pending and claim 6 is canceled.

#### ***Interview Summary***

The examiner confirms the telephonic interview on February 27, 2006. The discussion regarded the recitation of claim 1 and the relevancy of Freeman's reference. The applicant and the examiner agreed that the rejection of claim 1 will be reconsidered and the examiner agreed to further search the limitation in consideration upon applicant's explanation. However, the examiner disagrees with applicant regarding the statement that the "Examiner instructed Applicant's attorney to respond to...[prior art] US Patent No. 5,631,988." The examiner made no such instruction, in fact, applicant's attorney contacted the examiner on February 28, 2006 to inquire the prior art(s) found in the updated search. The examiner provided applicant's attorney with the prior art found to be relevant during the updated search process. In conclusion, both parties did not come to any formal agreement as the result of the interview on February 27, 2006.

#### ***Claim Objections***

Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The recitation that the assembly is a fiber optic connector is recited

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in claim 1. The examiner respectfully points out that the assembly is a fiber optic connector with or without the limitation of claim 2 as evidenced in claim 1 recitation *—a sleeve...and a ferrule of a fiber optic connector at opposite ends—*. The examiner respectfully points out that a ferrule is tubular clamp for holding an optical fiber in place. In the process of making an optical connector, the ferrule is commonly press fitted into the connector main body such that the final product of a connector *must* consist of a ferrule. Therefore, claim 1 recited a fiber optic connector and claim 2 is not further limiting the subject matter of the previous claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irie et al. (US 6,354,747 B1) in view of Freeman et al. (US 5,195,156).

Regarding claim 1 Irie et al teach an optical assembly comprising a package including an optoelectronic component, an InGaAs laser diode (col. 7, line 29), an alignment feature mounted to a surface of the package (Fig. 4A, 24), a sleeve, wherein the alignment feature is inserted into the sleeve (Fig. 2, 8) and the sleeve is sized to mate with a ferrule of the fiber optic connector (col. 4, line 50-53).

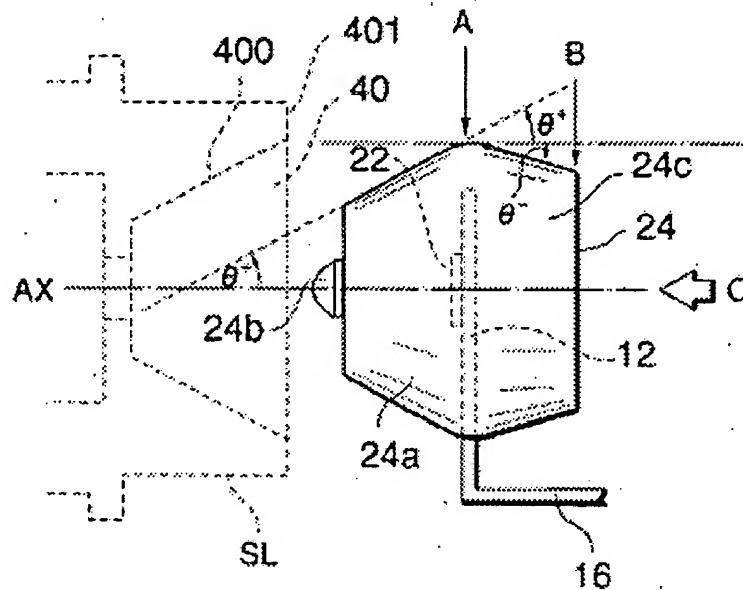
Regarding claim 3, the alignment feature is a cylindrical post, not emphasized in reference but visible in Fig. 7A, the stepped features to the left of the three bore holes (h1, h2, h3). The

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cylindrical post has a bore hole allowing the emitted light from the package to pass through (Fig. 4A, a long the AX line, Fig. 5C, the central hole). The bore hole allows the light emitting from the condensing lens, in a shape of a solid partial sphere (claim 5), to pass through.

Claim 5 is further amended to add the limitation

*--the outer surface of the solid partial sphere contacting the inner surface of the single bore of the sleeve--*



In Fig. 4A, the particular embodiment shows that the base 24 fits snugly in the element SL thus the solid partial sphere 24b will make contact the inner surface of the sleeve.

Claim 8 recites:

*"The assembly of claim 1, wherein the package is selected from a group consisting of an optoelectronic chip enclosure and a TO can."*

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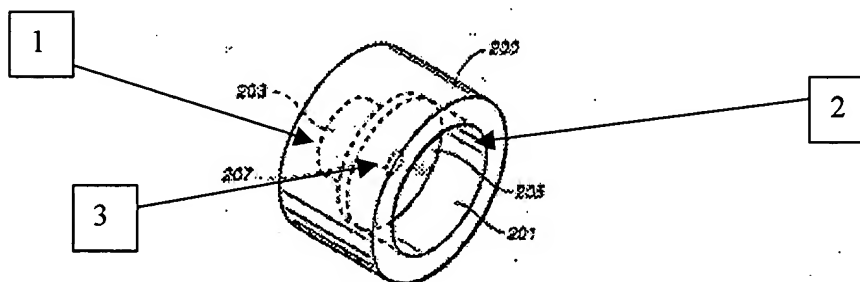
In Irie et al. invention, the head (24) is an optoelectronic chip enclosure. Furthermore, admitted by the Applicant in Fig. 18 (226) that TO can is known as prior art.

However, Irie et al. do not disclose a sleeve defining a single bore with a constant inner diameter wherein the alignment feature and a ferrule of a fiber optic connector are inserted into opposite ends of the bore to be aligned relative to each other. Irie, also, does not teach that the connector as specifically being an LC, ST, SC, or FC connector.

Freeman et al. teaches a sleeve 200 defining a single bore 207 with a constant inner diameter wherein the alignment feature and a ferrule of a fiber optic connector are inserted into the opposite ends of the bore to be aligned relative to each other. See Fig.\_4 and Fig.\_6.

The amended claim 1 further recites

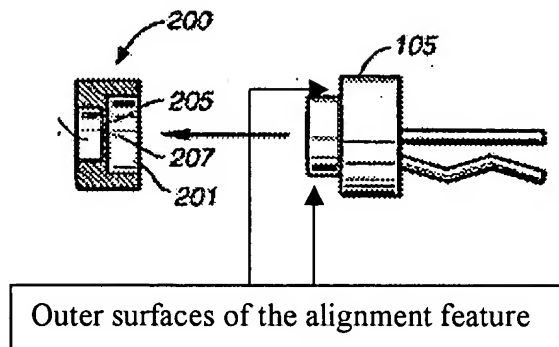
*--a sleeve defining a single bore with an inner surface having a constant diameter--*



Freeman's connector element 200 has three inner diameters that are all constant. Due to the open-ended transitional recitation, Freeman's element 200 meets the limitation cited above.

The next limitation in continuance recites

*--a constant inner diameter for receiving and contacting outer surfaces of the alignment feature—*



The alignment feature is in how the pieces are fitted together along the optical axis and in this case the feature is how element 105 fits into element 200. Once fitted, the outer surface of the sleeve 105 and the surface that is perpendicular to the sleeve are in contact with the constant diameter 201 of element 200. Furthermore, Freeman teaches as prior art that it is well known to incorporate an ST connector into the assembly to couple emitted light from the laser diode to the ferrule (col. 1, line 14-17).

Since Irie and Freeman are both from the same field of endeavor, the purpose disclosed by Freeman would have been recognized in the pertinent art of Irie.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ the sleeve 200 of Freeman's connector assembly and connect to Irie's ferrule 50 by forming the base 24 with a constant diameter rather than a tapered design.

**The motivation** for using the sleeve 200 is for standardizing the fitting of the light emitting element with any size ferrule by aligning the emitting beam with the fiber held by a ferrule and the sleeve 200 can fit into the tapering sleeve of Irie into the sleeve 200 and the opposite end of the sleeve 200 can fit into any other ferrule.

Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Irie et al. in view of Bartur et al. (US 6,652,158 B2).

Irie et al. teach an optical assembly comprising a package including an optoelectronic component, an alignment feature mounted to a surface of the package and a sleeve, wherein the alignment feature is inserted into the sleeve and the sleeve is sized to mate with a ferrule of the fiber optic connector. However, Irie et al. do not teach the alignment feature comprises a solid post comprising a transmissive material allowing emitted light to pass through.

Bartur et al. teach an optical assembly having an "active element" that is also an alignment element (Fig. 3, 24) that transmit the emitted light from the laser diode.

Since Irie et al. and Bartur et al. are both from the same field of endeavor, the purpose disclose by Bartur et al. would have been recognized in the pertinent art of Irie et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a silicon rod with a spherical distal end facing toward the ferrule, having acceptable transmissive index to allow light to pass through from the laser diode. By employing such rod that is able to transmit light as well allow an artisan to eliminate an extra element in the assembly such as the spherical lens. Thus reducing the manufacturing cost.

#### *Response to Arguments*

Applicant's arguments filed February 28, 2006 have been fully considered but they are not persuasive.

Applicant's only argument is:

Freeman et al. does not disclose a single bore receiving and contacting outer surfaces of (1) an alignment feature on an optoelectronic package and (2) a ferrule of a fiber optic connector as recited in claim 1.

The Examiner's response is as follows:

Freeman clearly and distinctly discloses a ferrule aligned at the opposite end of the bore. The examiner Applicant's open-ended transitional recitation does not clearly limit the sleeve to have only one bore. For further clarification, Freeman's sleeve (200) is also the alignment feature such that once assembled, the alignment feature is mounted to a surface of the package.

*Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erin D Chiem  
Examiner  
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